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E-NOTES

United States Industry Coalition

In today's edition:

President's Report: U.S-Russian Politics and U.S. Review of Russian Programs

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To paraphrase Charles Dickens, it is the best of times and the worst of times. Some events in Russia are promising, while others are discouraging. Both the U.S. and Russia have new presidents, yet neither one has spelled out his plan to deal with the other. On one hand, the reciprocal expulsion of diplomats is not a good omen — nor is Russia's nuclear dealmaking with certain countries of concern for proliferation. The shuffling of ministers in Russia last week, on the other hand, is a sign that Putin wants his own people in positions of authority. Hopefully for us, this means that Putin is about to make changes that will facilitate doing business in Russia. It may also mean that Russia will cease activities that make it difficult for the U.S. and our allies to treat Russia as a friend.

As you already know, the new U.S. administration is conducting a broad national security review. This will include an evaluation of Russian programs – to assess which programs work, which do not, and which support our national interests. I am confident that IPP will be evaluated in a favorable light.

The proposed Bush budget for next year will seek approximately $2 Million less than this year's $24.5 Million. I would hope that Congress will increase the IPP budget on the basis of our continuing and growing success at creating new jobs and wealth in the U.S. and in the Newly Independent States. Congress will undoubtedly take note of our ability to attract new capital for the final stages of commercialization – $45 million so far this year is a strong and positive indicator of the program's success. The good news on capital investments will be reinforced by IPP's new way of funding MINATOM projects through the ISTC and the other projects through CRDF. Stay tuned.

IPP Director's Report: Capital Investments Validate IPP Model

JAMES R. NOBLE

IPP is reaching new heights of success. As reported here and in previous editions of E-NOTES, IPP projects are starting to attract substantial amounts of venture capital. In just four months, two USIC member companies have announced almost $45 million in international investments based on technologies resulting from their IPP projects. These investments are further validation of the IPP model, and ably demonstrate the significant multiplier effect of the program's commercialization focus. These success stories come at a crucial time, as the Congress considers next year's budget for IPP and other security programs connected with Russia and other republics of the former Soviet Union. The growing private-sector contribution to this partnership between industry and government reflects well on IPP and the manner in which the program is meeting U.S. nonproliferation objectives while providing new sources of technology for U.S. industry.

USIC Member Paratek Microwave Draws $24 Million Investment for Scanning Antenna Product

Dr. Louise C. Sengupta, CEO of **Paratek Microwave, Inc**. of Columbia, MD, recently announced that her firm has attracted $24 Million in venture capital to support commercialization of its new, low-cost electronically scanning antenna system for wireless communications.

DRWiNÔ (Dynamically Reconfigurable Wireless Networks) is the first low-cost passive phased array antenna system with the ability to provide increased capacity, data rates and reliability to wireless networks.

The technology was created with assistance from IPP partners **St. Petersburg Electrotechnical University** and the **National Renewable Energy Laboratory**, who helped develop the phase shifter devices used in the antenna system.

Using ceramic materials invented by Dr. Sengupta and her team, Paratek developed flat antennas that incorporate electronic scanning rather than movable parts. These "smart" antennas are able to focus all their power to individual subscribers in sequence, and then revert to a broad beam mode to find customers requesting new service. DRWiNÔ can switch to narrow beam transmission to avoid outside noise sources; it also allows multiple beams to operate independently at the same frequency within the same sector.

According to Dr. Sengupta, the DRWiNÔ technology represents a convergence of breakthrough materials technology, innovative radio frequency (RF) and antenna design with low-cost manufacturing processes that will enable a new class of wireless products.

"The RF and Microwave engineering talent we have tapped through our involvement with the IPP program has been instrumental in providing designs leading to Paratek's product advancements. We have been engaged with the program for about two years and are very enthusiastic about continuing our relationship with IPP," said Dr. Sengupta.

The $24 Million investment in Paratek comes from a consortium led by Morgenthaler Ventures, and includes JPMorgan Partners, Investor AB, ABS Ventures, Novak Biddle, Riggs Capital Partners and Women's Growth Capital Fund. It follows on the heels of two earlier rounds, and brings the total amount raised by Paratek to more than $36 million since its inception in 1998. Motorola has been a strategic investor in Paratek since May 2000.

"Paratek's products will change the way wireless networks operate. Our company plans to be a bold and innovative market leader," states Dr. Sengupta.

For more information on DRWiNÔ and other products, contact **Paratek**.

Paratek CEO Louise Sengupta is enthusiastic about the IPP program.

Flat antennas use electronic scanning.

Click to view Paratek's poster

National Renewable Energy Laboratory

St. Petersburg Electrotechnical University

NEW USIC MEMBERS

New Primary Members

Advanced Biotherapy, Inc., a small firm in Carlsbad, CA, focuses on development of new therapeutic strategies for treatment of severe autoimmune diseases. These disorders constitute a huge unmet medical need and include Multiple Sclerosis (MS), Rheumatoid Arthritis (RA), Insulin Dependent Diabetes and a host of other serious diseases.

BNFL, Inc. is an American environmental clean-up company providing waste management, decontamination, decommissioning and facility operations for difficult environmental and nuclear challenges. Founded in 1990 as a subsidiary of British Nuclear Fuels plc, this Fairfax, VA-based company now manages 1500 employees at 11 U.S. offices and at five DOE sites. BNFL is developing an IPP project with **Idaho National Engineering & Environmental Laboratory** and the Research Center of Toxicology and Hygienic Regulation of Biopreparations in Serpuchov, Russia. The partners will work on an innovative technology that harnesses environmental microbes for decontamination of concrete surfaces.

Brush Engineered Materials, Inc., was originally founded in 1931 as the Brush Beryllium Company. Today, the Cleveland, Ohio firm is a leading international supplier and producer of high performance engineered materials and the only fully integrated beryllium producer in the world. Brush is working with USIC member NUKEM, Inc., **Los Alamos National Laboratory** and the Ulba Metallurgical Works in Kazakhstan on development of a commercial copper beryllium master alloy production capability at the Ulba facility in Oskemen.

Flowserve Corporation of Los Angeles, CA, is a leading provider of industrial flow management services and a producer of engineered and process pumps, precision mechanical seals, automated and manual quarter-turn valves, control valves and valve actuators. Together with **Brookhaven National Laboratory** and the Central Design Bureau of Machine Building of St. Petersburg, Flowserve is working on advanced centrifugal pumps for the power, petroleum, chemical and water services industries.

Industrial Cleaning & Environmental Services, Inc. (ICES) of Lexington, KY, operates an industrial cleaning service specializing in a CO2 dry ice process for special applications, including confined entry and hazardous environments. The company also provides services in business planning, product engineering, and technical assistance. Together with **Oak Ridge National Laboratory**, ICES will assist the Mining & Chemical Combine (Krasnoyarsk-26) in Zheleznogorsk, Russia, to build an ISO-certified facility for their continuous CO2 extraction technology.

Lakrom, Ltd. is a leading designer and constructor of full-scope, analytical, and compact simulators for the energy sector. With corporate offices in Baltimore, MD and Moscow, the company has wide-ranging experience in Soviet-designed nuclear reactors and their systems, as well as in the design, construction, testing, and production of many different simulators in Eastern Europe. Working with **Brookhaven National Laboratory** and VNIIEF (Arzamas-16) in Sarov, Russia, Lakrom will undertake development of 3-D thermal-hydraulic capabilities for nuclear power plant simulators.

MER Corporation (Materials & Electrochemical Research) of Tucson, AZ, was founded in 1985. With specialization in advanced engineered materials research, development and production, MER's core technologies include composites (carbon, metal, ceramic and polymer), coating, electrochemical and energy systems (fuel cells, and lithium-ion batteries), porous materials including foams (carbon/graphite and metal) and fullerenes/nanotubes. MER is joining with **Lawrence Berkeley National Laboratory** and the Institute of High Current Electronics in Tomsk, Russia, on development of low-cost, large-scale, diamond-like carbon coatings for use in numerous industrial applications.

SolarEn International Corporation, established in late 1999, is a Glendale, CA-based company interested in developing clean energies from solar, wind and fuel cell technologies. SolarEn is partnering with the **National Renewable Energy Laboratory** and Intersolarcenter in Moscow to conduct a small-scale pilot plant verification of the chemical process needed for production of solar grade polysilicon used in photovoltaic solar cells. The team is looking for new production methods that use less energy and are more environmentally friendly.

New Associate Member

USIC is pleased to announce the addition of the **Lawyers Alliance for World Security (LAWS)** as an Associate Member. Under the leadership of Ambassador Thomas Graham, Jr., LAWS is a non-profit association of prominent individuals who are concerned with proliferation of weapons of mass destruction. Located in Washington, DC with chapters in New York, Boston and Philadelphia, LAWS works to educate the public about the dangers posed by WMD proliferation and the inherent threat their existence represents to U.S. and world security.

Returning to USIC

Battelle Memorial Institute has re-joined USIC as a primary member. The AgriFood Sector of Battelle, located in Richland, WA, has several IPP projects in the works with **Pacific Northwest National Laboratory**.

Capitol Hill Visits Used to Broaden Appreciation of USIC-IPP Program

Product demonstrations, "posters," briefing books and straightforward conversation are the simple but powerful tools used by USIC members to broaden understanding on Capitol Hill about the IPP program, technology commercialization and benefits to both American and former Soviet partners.

A needleless injector with great potential for safe, rapid, mass immunizations was demonstrated recently for **Sen. Pat Roberts (R-KS)**, members of the Kansas congressional delegation and the Senate Armed Services Committee. The injector is under development by **Felton Medical, Inc.** of Lawrence, KS together with the **Kansas City Plant** and the **Chemical Automatics Design Bureau** (CADB) in Voronezh, Russia. Shortly after signing the CRADA to launch their project, **Alan Felton,** CEO of Felton Medical, and **Juiry Shipulin,** VP of CADB, traveled to Washington to show off the new technology and describe their shared vision for the human health benefits it makes possible.

Alan Felton (l) looks on as Juiry Shipulin (r) explains needleless injector technology to Senator Pat Roberts (R-KS).

When **Rep. Curt Weldon (R-PA)** announced a congressional study tour to the former Soviet Union that included a stop at the **Kurchatov Institute of Atomic Energy** in Moscow, USIC prepared a briefing book featuring eight projects at Kurchatov and over a dozen IPP commercial successes. Highlighted was a new Kurchatov project by Weldon constituent and USIC member **Cyber Technology Group** of Wayne, PA. Cyber Tech is partnering with **Lawrence Livermore National Laboratory** on a "virtual programmers" effort to train nuclear scientists at Kurchatov on software protocols and applications for commercial use.

USIC "posters" help draw attention to IPP projects

Click to view Cyber Tech's poster

Plans are underway for a set of briefings in Washington, DC and Reno, NV for **Sen. Harry Reid (D-NV)** and his staff by USIC member **ACSPECT Corporation** of Reno. ACSPECT is partnering with **Lawrence Livermore National Laboratory** and the **Lebedev Physical Institute** in Moscow on development of new optical devices and instrumentation for extreme ultraviolet and soft x-ray diagnostics.

USIC Joins in Seminars & Conferences on U.S.- Russian Investments

The USIC-IPP model for technology commercialization was presented at four key events during the month of March.

In a March 8 lecture to the NATO Scientific Committee, USIC President **Vic Alessi** described steps in the commercialization process and urged NATO members to consider launching similar programs. Dr. Alessi is now working with **John Rooney** of DOE and **Vic Teplitz** from the President's Office of Science and Technology on a follow-through effort that could provide more opportunities for commercialization of science.

At the invitation of former **Sen. Sam Nunn**, Dr. Alessi presented five USIC-IPP projects in Russian closed cities at the 2001 Sam Nunn *Bank of America* Policy Forum. More than 200 persons attended the program, "Russian Scientific Talents: Economic Opportunities and Challenges" on March 26-27. USIC members whose projects were featured included **Advanced Composites Structures, Numotech, Radiation Monitoring Devices, Seattle Orthopedic Group,** and **American-Russian Environmental Services and Mississippi State University.**

USIC joined the Pennsylvania-Russia Business Council on March 12 in sponsoring the first in a series of seminars focused on Russian science and technology opportunities for U.S. business. In his keynote address, **Rep. Curt Weldon (R-PA)**, Co-Chair of the U.S. Congress-Russian Duma Working Group, discussed the progress and pitfalls encountered in helping his Duma colleagues establish a rule of law protecting investments, an effort Weldon believes will bear fruit in the near future. USIC COO **Gary Tydings** gave a presentation on USIC and its role in the commercialization successes of the IPP program to an audience consisting of business, non-profits and legal firms from the Philadelphia area. The seminar series is a lead-in to the Pennsylvania-Russian American Innovation Technologies Trade Show and Conference in September 2001.

Later that same week, Tydings traveled to NYC to attend the "5th Annual Conference on Investing in Russia and the CIS," sponsored by several Russian and U.S. banks, and by USIC members **Credit Suisse/First Boston** and the **U.S.-Russia Business Council**. U.S. investment organizations were able to meet with counterparts in the newly emerging Russian/CIS investment and banking sectors. Conference presentations ranged from political/economic outlooks to specific topics dealing with legal issues, equity market strategy, oil and gas, banking, private equity investing, telecommunications. Five Russian companies made presentations on their investment needs.

According to Tydings, "The overall tenor of the conference reflected a continued reluctance to make serious equity investments because of lack of investor protection. However, the Russian banks seemed to be willing to listen to equity investment opportunities that would occur in their country."

Technology Commercialization Services for USIC Members

USIC Primary Members may call on the USIC office for a range of services in technology commercialization, including NIS technology identification, market research and assessment, and – for small business members – assistance on business plans and Russian language translation. Contact **Gary Tydings,** COO, to discuss your company's requirements: 1-800-339-8742 or 703-526-9447, x303.

Business Venture Opportunities Through Nuclear Cities Initiative

William J. Desmond, former director of the IPP program who is now guiding the Nuclear Cities Initiative (NCI) for the Department of Energy, has extended an invitation to USIC members to consider establishing business ventures through the NCI program. Click on his letter and companion NCI fact sheet for more information. Contact **William Desmond** to discuss how your company may work with NCI, 202-586-1007.

Member Survey in April

In April, USIC members will be surveyed by e-mail to explore specific needs and issues related to their IPP projects, to help plan the October 2001 annual meeting, and to measure use of the USIC web site, readership of E-NOTES and other items. Survey responses will shape services to DOE and USIC members.

Comments on E-NOTES or the USIC web site?
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